



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/287,304	04/07/1999	AKIRA YAMAMOTO	0941.63012	6149

24978 7590 06/28/2005

GREER, BURNS & CRAIN
300 S WACKER DR
25TH FLOOR
CHICAGO, IL 60606

EXAMINER

PIZIALI, JEFFREY J

ART UNIT	PAPER NUMBER
----------	--------------

2673

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/287,304

Applicant(s)

YAMAMOTO ET AL.

Examiner

Jeff Piziali

Art Unit

2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2005 and 28 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submissions filed on 17 June 2005 and 28 April 2005 have been entered.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

3. The drawings were received on 21 November 2001. These drawings are acceptable.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 2673

5. Claims 1 and 14-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

6. The term "generally flat surfaces" in claims 1 and 14-16 is a relative term which renders the claims indefinite. The term "generally flat" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. One skilled in the art would be unable to ascertain how flat a surface would have to be before qualifying as *generally flat*. Moreover, one skilled in the art would be unable to ascertain how curved, jagged, bumpy, etc. a surface must be before it no longer constitutes a *generally flat surface*. It is additionally noted that claims 1 and 14-16 each later go on to refer to "said flat surfaces." It has been presumed in this office action that the "generally flat surfaces" are in fact simply "flat surfaces."

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-6, 8-16, and 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakajima (US 5,654,735).

Regarding claim 1, Nakajima discloses a liquid crystal display device including a data driver [Fig. 1; 13] and a gate driver [Fig. 1; 12], comprising an LCD panel [Fig. 1; 1] having two

Art Unit: 2673

opposing generally flat surfaces, an area of one of the flat surfaces for displaying an image, and at least two edges opposing one another about the flat surfaces and outside of the display area; a substrate on which the LCD panel, the data driver and the gate driver are integrally formed; the data driver on a single edge of the at least two opposing edges of the LCD panel being divided into a plurality of blocks [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}, etc.] so as to divide the LCD panel into sections arranged side by side, which simultaneously supply the LCD panel with display signals respectively supplied thereto, wherein each of the blocks includes a plurality of signal lines [Fig. 1; V_n, V_{n+1}, etc.] that are connected to a plurality of data bus lines [Fig. 1; SIG1-SIG3, Ø_n, Ø_{n+1}, Ø_{n+2}, etc.] via analog switches [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}, etc.], a number of the data bus lines being larger than a number of the signal lines, the display signals simultaneously being supplied from and written to the plurality of signal lines to and from the data bus lines respectively, and the blocks are arranged adjacent to each other along the single edge of the LCD panel, and each block includes a series of different signal lines (see Column 4, Line 1 - Column 5, Line 31).

Regarding claim 2, Nakajima discloses a block comprising a shift register [Fig. 1; 15]; signal lines [Fig. 1; V_n, V_{n+1}, etc.] connected to the signal lines and the LCD panel [Fig. 1; 1]; and analog switches [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}] provided in the data bus lines and controlled by an output signal [Fig. 1; Ø_n, Ø_{n+1}, Ø_{n+2}, etc.] of the shift register thereto (see Column 4, Lines 1-42).

Regarding claim 3, Nakajima discloses a driver device [Fig. 1; 2] which receives display data [Fig. 1; VIDEO] externally supplied and outputs the display signals derived therefrom to the blocks of the data driver (see Column 4, Line 43 - Column 5, Line 7).

Regarding claim 4, Nakajima discloses a plurality of driver devices [Fig. 1; 21+24, 22+25, 23+26] which are respectively associated with a plurality of ones of the blocks, each of the plurality of driver devices receiving display data [Fig. 1; VIDEO, SIG1-SIG3] externally supplied and outputting the display signals derived therefrom to associated blocks of the data driver (see Column 4, Line 43 - Column 5, Line 7).

Regarding claim 5, Nakajima discloses the display signal lines of the associated blocks have parts extending from one of the plurality of driver devices through a space located between the associated blocks (see Fig. 1).

Regarding claim 6, Nakajima discloses a substrate on which the LCD panel, data driver and gate driver are integrally formed (see Fig. 1; Column 4, Lines 1-42).

Regarding claim 8, Nakajima discloses a display signal supply device [Fig. 1, VIDEO] which outputs the display data to the driver device (see Column 4, Line 43 - Column 5, Line 7).

Regarding claim 9, Nakajima discloses the display signal display device is formed on the LCD panel (see Column 4, Lines 1-42).

Regarding claim 10, Nakajima discloses a display signal supply device [Fig. 1, VIDEO] which outputs the display data to the plurality of driver devices (see Column 4, Line 43 - Column 5, Line 7).

Regarding claim 11, Nakajima discloses each of the plurality of blocks supplies the LCD panel with a given number [three, for instance] of display signals at once (Column 5, Lines 8-31).

Regarding claim 12, Nakajima discloses the driver device comprises a shift register [Fig. 1; 3] which outputs a shift signal [Fig. 1; SH1, SH2, SH3], first latch circuits [Fig. 1; 21-23] which latch the display data in response to the shift signal, and second latch circuits [Fig. 1; 24-26] which latch the display data from the first latch circuits in response to a latch enable signal [Fig. 1; SH4] externally supplied [Fig. 1; SYNC] (Column 4, Line 43 - Column 5, Line 31).

Regarding claim 13, Nakajima discloses digital-to-analog converters [Fig. 3, 202] which convert the display data from the second latch circuits into analog signals (Column 7, Line 60 - Column 8, Line 23).

Regarding claim 14, this claim is rejected by the reasoning applied in rejecting claim 1; furthermore, Nakajima discloses a liquid crystal display device including a data driver [Fig. 1; 13] and a gate driver [Fig. 1; 12], comprising an LCD panel [Fig. 1; 1] having two opposing generally flat surfaces, an area of one of the flat surfaces for displaying an image, and at least two edges opposing one another about the flat surfaces and outside of the display area; and

Art Unit: 2673

groups of signal lines [Fig. 1; V_n , V_{n+1} , etc.] for carrying display signals, the signal lines within each of the groups being adjacent to each other along a single edge of the at least two opposing edges of the LCD panel, and the data driver being divided into a plurality of adjacently arranged blocks [Fig. 1; HSW_n , HSW_{n+1} , HSW_{n+2} , etc.] from which the groups of signal lines extend over corresponding partial areas of the LCD device so that each of the groups of signal lines is associated with a respective one of the blocks of the data driver, wherein the signal lines in each of the blocks are connected to a plurality of data bus lines [Fig. 1; SIG1-SIG3, \emptyset_n , \emptyset_{n+1} , \emptyset_{n+2} , etc.] via analog switches [Fig. 1; HSW_n , HSW_{n+1} , HSW_{n+2} , etc.], a number of the data bus lines is larger than a number of the signal lines, and the display signals are simultaneously supplied from and written to the groups of signal lines to and from the data bus lines respectively (see Column 4, Line 1 - Column 5, Line 31).

Regarding claim 15, Nakajima discloses a liquid crystal display device including a data driver [Fig. 1; 13] and a gate driver [Fig. 1; 12], comprising an LCD panel [Fig. 1; 1] having two opposing generally flat surfaces, an area of one of the flat surfaces for displaying an image, and at least two edges opposing one another about the flat surfaces and outside of the display area; signal lines [Fig. 1; V_n , V_{n+1} , etc.] extending from the data driver and carrying display signals, the data driver and the signal lines being divided into a plurality of blocks [Fig. 1; HSW_n , HSW_{n+1} , HSW_{n+2} , etc.] so that the divided signal lines extending from one of the plurality of blocks extends over a corresponding divided area of the LCD device; wherein the plurality of blocks are adjacent to each other along a single edge of the at least two opposing edges of the LCD panel, the divided signal lines in each of the plurality of blocks are connected to a plurality of data bus lines [Fig. 1; SIG1-SIG3, \emptyset_n , \emptyset_{n+1} , \emptyset_{n+2} , etc.] via analog switches [Fig. 1; HSW_n ,

Art Unit: 2673

HSW_{n+1}, HSW_{n+2}, etc.], a number of the data bus lines being larger than a number of the signal lines, and display signals being simultaneously supplied from and written to the plurality of signal lines to and from the data bus lines respectively (see Column 4, Line 1 - Column 5, Line 31).

Regarding claim 16, Nakajima discloses a liquid crystal display device including a data driver [Fig. 1; 13] and a gate driver [Fig. 1; 12], comprising an LCD panel [Fig. 1; 1] having two opposing generally flat surfaces, an area of one of the flat surfaces for displaying an image, and at least two edges opposing one another about the flat surfaces and outside of the display area; a substrate on which the LCD panel, the data driver and the gate driver are integrally formed; the data driver being divided into a plurality of blocks [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}, etc.] arranged side by side along a single edge of the at least two opposing edges of the LCD panel, and each of the blocks has a plurality of signal lines [Fig. 1; V_n, V_{n+1}, etc.] that extend into the liquid crystal display device and are connected to a plurality of data bus lines [Fig. 1; SIG1-SIG3, Ø_n, Ø_{n+1}, Ø_{n+2}, etc.] via analog switches [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}, etc.], a number of the data bus lines being larger than a number of the signal lines, and display signals being simultaneously supplied from and written to the plurality of signal lines to and from the data bus lines respectively (see Column 4, Line 1 - Column 5, Line 31).

Regarding claim 18, Nakajima discloses each of the blocks [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}, etc.] is arranged adjacent to a block of at least one of an immediately preceding block and an immediately following block (see Fig. 1).

Regarding claim 19, this claim is rejected by the reasoning applied in the above rejection of claim 18.

Regarding claim 20, this claim is rejected by the reasoning applied in the above rejection of claim 18.

Regarding claim 21, this claim is rejected by the reasoning applied in the above rejection of claim 18.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 7 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima (US 5,654,735).

Regarding claims 7 and 17, Nakajima discloses the use of thin film transistors (see Column 4, Lines 6-7). Yet, Nakajima does not expressly teach the data driver comprising polysilicon transistors. However, the use of polysilicon transistors within data drivers was well known and commonly understood in the art of LCD data electrode driving at the time of invention. Therefore, it would have been obvious to one skilled in the art at the time of invention

Art Unit: 2673

to use polysilicon transistors within Nakajima's data driver, so as to manufacture the device with commonly available circuitry components.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Response to Arguments

12. Applicants' arguments filed 17 June 2005 and 28 April 2005 have been fully considered but they are not persuasive. The applicants contend the cited prior art of Nakajima (US 5,654,735) neglects teaching a plurality of blocks, wherein each block includes a series of different signal lines (see Page 9, Paragraph 2 of the amendment filed 17 June 2005, as well as the last line of newly amended claim 1). However, the examiner respectfully disagrees. Nakajima clearly discloses the data driver [Fig. 1; 13] being divided into a plurality of blocks [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}, etc.], wherein each block includes a series of different signal lines [Fig. 1; V_n, V_{n+1}, etc.] (see Column 4, Lines 1-42).

Additionally, the applicants contend Nakajima neglects teaching the simultaneous supply of display signals from the signal lines to the data bus lines, and from the data bus lines to the signal lines (see Page 2, Paragraph 3 of the amendment filed 28 April 2005, as well as the last

Art Unit: 2673

paragraph of independent claims 1 and 14-16). However, the examiner respectfully disagrees. Specifically, the examiner respectfully disagrees that the pending claims incorporate any such particular subject matter. The applicants are hereby cordially thanked for their remarks submitted 28 April 2005, further clarifying their position as well as the operational structure of the instant invention. Due in part to the erudite explanation provided in the remarks of 28 April 2005, the examiner now appreciates a misunderstanding over differing claim language interpretations has rendered the rejection of claims unclear to the applicants. The examiner will now seek to endeavor to better clarify both his claim interpretation and the associated rejection of claims.

Independent claim 1 recites the subject matter of "*display signals simultaneously being supplied from and written to the plurality of signal lines to and from the data bus lines respectively*" (see lines 14-16). Independent claim 14 recites the subject matter of "*display signals are simultaneously supplied from and written to the groups of signal lines to and from the data bus lines respectively*" (see lines 15-16). Independent claim 15 recites the subject matter of "*display signals being simultaneously supplied from and written to said signal lines to and from said data bus lines respectively*" (see lines 14-15). Independent claim 16 recites the subject matter of "*display signals being simultaneously supplied from and written to said plurality of signal lines to and from said data bus lines respectively*" (see lines 12-14).

Although each independent claim include language somewhat similar to what the applicants are arguing (i.e. simultaneous supply of display signals from the signal lines to the data bus lines, and from the data bus lines to the signal lines), the claims incorporate different enough language that one skilled in the art would understand the invention in another fashion altogether.

The examiner is reading claim language (referring in this instance to claim 1) as effectively incorporating the subject matter of *the display signals simultaneously being supplied from and written to the plurality of signal lines, and the display signals simultaneously being supplied to and from the data bus lines respectively*. It is appreciated that the applicants seem to wish to mean, *the display signals simultaneously being supplied from the signal lines to the data bus lines, and the display signals simultaneously being supplied from the data bus lines to the signal lines*. However, present claim language has been composed in such a manner that one skilled in the art would come away with an alternate interpretation of the claimed invention. Furthermore, Nakajima clearly discloses display signals [Fig. 1; VIDEO] simultaneously being supplied [Fig. 1; via horizontal switches HSW_n, HSW_{n+1}, HSW_{n+2}, etc. to pixels 11] from and written to the plurality of signal lines [Fig. 1; V_n, V_{n+1}, etc.], and the display signals [Fig. 1; VIDEO] simultaneously being supplied [Fig. 1; via video driver 2 to horizontal switches HSW_n, HSW_{n+1}, HSW_{n+2}, etc.] to and from the data bus lines [Fig. 1; SIG1-SIG3, Ø_n, Ø_{n+1}, Ø_{n+2}, etc.] respectively (see Column 4, Lines 1-42).

By such reasoning, rejection of the claims is deemed necessary, proper, and thereby maintained at this time.

Art Unit: 2673

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



J.P.
23 June 2005



BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600